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Yi Wang

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VANDERVEGT, FRANCOIS P

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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DETAILED ACTION

This application claims the benefit of the filing date of provisional applications 60/408,571 and 60/469189.

Claims 30, 36-40 and 43 have been canceled.

Claims 1-29, 31-35, 41, 42, and 44-50 are currently pending.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 8, 2008 has been entered.

1. It is noted that claim 14 has been instantly amended in a manner that corrects the format of the amendment to the claim filed January 11, 2008. This amendment is a typographical correction and does not affect the substance of the claim or any ground of rejection applied thereto.

Election/Restrictions

2. Applicant's election without traverse of Group I, originally claims 1-22, 24, 25, 27, 28, 30, 32, 34, 36-40 and 43, in the reply filed on November 13, 2006 is acknowledged.

Claims 23, 26, 29, 31, 33, 35, 41, 42 and 44 stand withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on November 13, 2006.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would

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have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-22, 24, 25, 27, 28, 32, 34, and 45-50 stand provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14 of copending Application No. 11/127,438. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the '438 application are similarly drawn to the treatment of inflammatory conditions, including asthma, using anti-complement antibodies, including antibodies to the C5 complement component.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented. Applicant's intent to address this ground of rejection upon the identification of allowable subject material is noted.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-10, 18, 22, 24, 25, 27, 28, 32, and 34 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Drouin (J. Immunol. [2001] 166:2025-2032; CP on form PTO-1449 filed 9/25/2006).

It was previously stated: "Drouin teaches that C5a receptors are increased on bronchial epithelial and smooth muscle cells in sepsis and in asthma (Abstract in particular). Drouin teaches that septic primates and rats that are treated with anti-C5a antibodies have reduced pulmonary edema and lung injury (page 2031, first column in particular).

It would have been prima facie obvious to a person having ordinary skill in the art at the time the invention was made to treat subjects with asthma using an antibody that inhibits C5 or C5a based upon

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the teachings of Drouin. One would have been motivated to do so with a reasonable expectation of success by the teachings of Drouin that treatment of similar inflammatory events in sepsis with anti-C5a antibodies reduced edema and damage in the lungs.

Applicant's arguments filed June 15, 2007 have been fully considered but they are not persuasive. Applicant asserts that the results of Drouin are not relevant to the claimed invention because Drouin allegedly teaches an increase of C3aR and C5aR in sepsis and an increase of C3aR in asthma, but "teaches away" from an increase of C5aR in asthma. Applicant's argument is without merit. Drouin clearly teaches in the Abstract that C5aR has a role in inflammation in asthma. Furthermore, Drouin clearly states at page 2029, column 2:

"This study documents for the first time the expression of C3aR by lung cells and confirms previous reports that cells endogenous to mouse and human lungs express C5aR. Moreover, we have established that both receptors are up-regulated in two distinct models of lung inflammation: endotoxemia and OVA-induced asthma."

Accordingly, far from "teaching away" from Applicant's claimed invention, Drouin clearly teaches that the same increase seen in sepsis is also seen in the model of asthma. Accordingly, the teachings of Drouin fairly suggest to the artisan that a treatment protocol that is effective in reducing inflammation in sepsis would be reasonably expected to be successful for the amelioration of inflammation in asthma as well.

Applicant's arguments filed January 11, 2008 have been fully considered but they are not persuasive. Applicant continues to argue that Drouin does not teach that C5aR is increased in the OVA-induced model of asthma, but rather teaches only of an increase in C5aR in the LPS-induced model of sepsis. Applicant asserts that the Examiner is relying only upon a single statement from the teachings of Drouin and is not taking the totality of the teaching into consideration, intimating that the Examiner is taking that statement of the Drouin reference out of context.

This is not the case. In fact, "taking the totality of the Drouin reference into consideration" bolsters the Examiner's position. Applicant relies upon the singular fact which, as Applicant correctly states, is repeated several times throughout the reference that C5aR is not increased on bronchial or alveolar epithelial cells in response to OVA challenge. However, the claimed invention is not limited to preventing an increase of C5aR on epithelial cells in asthma; rather the invention is drawn to treating asthma or pulmonary disease by methods disclosed in the specification for reducing inflammation by administering anti-C5a antibody. Drouin's teaching of up-regulation of C5aR up-regulation in lung inflammation in OVA-induced asthma is not limited to the expression of C5aR by bronchial or alveolar epithelial cells. Drouin teaches that the up-regulation of C5aR in lung is due to the "massive influx of granulocytes and macrophages" (page 2029, second column in particular). There is no exclusion of treating inflammation of pulmonary tissues due to the influx of classic inflammatory cells. Drouin also teaches that lavage fluids from human asthma patients contain both C3a and C5a anaphylatoxins and that in animal models instillation of C3a and C5a into the lungs induces respiratory distress, including recruitment of leukocytes (page 2031, first column in particular). It should also be noted that claims 4-10, 18, and 27 are not limited to the treatment of asthma. Drouin's teachings regarding inflammation in sepsis are equally applicable to these claims."

Applicant's arguments filed December 8, 2008 have been fully considered but they are not persuasive.

Applicant asserts that an artisan reading Drouin's teaching "would not have believed that inhibition of C5 or C5a would treat or prevent a C3a-mediated disease like asthma" (page 11 of response

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filed 12/08/2008). Applicant bases this assertion on the disclosure by Drouin that “C3aR may play a more significant role in lung inflammation in the asthma model” (Drouin p. 2031, col. 1, para. 2 as cited in Applicant’s response). Applicant asserts that the artisan would have believed that inhibition of C3a or C3aR would be beneficial to treat asthma, and submits the teaching of Humbles et al (Nature [2000] 406:998-1001; NOT cited on IDS) showing that C3aR deficient mice were protected against airway hyperresponsiveness in a mouse model of asthma. However, the ability to treat asthma by inhibiting C3a activity is neither being questioned nor at issue in the present application.

The presently claimed invention is not drawn to “preventing asthma” per se by inhibiting C5a activity. The claims are drawn to treatment of asthma “comprising” administering an anti-C5 antibody. The term “comprising” is an open term which does not preclude using one type of treatment in conjunction with the other. Simultaneous treatment of a subject with more than one therapeutic agent is not uncommon in the art. Drouin unequivocally states, “we have established that **both** receptors [meaning C3aR and C5aR] are up-regulated in two distinct models of lung inflammation: endotoxemia **and** OVA-induced asthma” (page 2029, end of column 2 in particular; emphases and [text] added for clarity). Again, the claimed invention is not limited to preventing an increase of C5aR on epithelial cells in asthma; rather the invention is drawn to treating asthma or pulmonary disease by methods disclosed in the specification for reducing inflammation by administering anti-C5a antibody. Drouin’s teaching of up-regulation of C5aR up-regulation in lung inflammation in OVA-induced asthma is not limited to the expression of C5aR by bronchial or alveolar epithelial cells. Drouin teaches that the up-regulation of C5aR in lung is due to the “massive influx of granulocytes and macrophages” (page 2029, second column in particular). There is no exclusion of treating inflammation of pulmonary tissues due to the influx of classic inflammatory cells.

Based upon the teachings of Drouin, the artisan would have seen the benefit of treating a subject with anti-C5 antibodies to inhibit the influx of these classic inflammatory cells. Co-treatment with anti-C3- specific antibodies, C3a- specific antibodies or C3aR-specific antibodies to counter the effect of the increased C3aR expression on bronchial and alveolar epithelial cells in asthma is not precluded nor excluded by anti-C5 treatment.

Applicant further cites teachings by Karp et al. (Nature Immunol. [2000] 1(3):221-226; NOT cited on IDS), Drouin et al. (Am. J. Respir Crit Care Med [2006] 173:852-857; NOT cited on IDS) and Sinha et al (Molec Immunol [2008] 45:4109-4110; NOT cited on IDS), each of which shows that C5 and C5aR deficient animals are more susceptible to increased airway hyperresponsiveness (AHR). Applicant concludes that these teachings each teaches away from the claimed invention for this reason.

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Applicant points out that Karp discloses that blockade of the C5aR with anti-C5aR antibodies inhibits IL-12 production (Abstract and Figure 3 in particular) and that IL-12 deficiency has an exacerbating effect in AHR and asthma. However, the claimed invention is not drawn to treatment of asthma with anti-C5aR antibodies. The claimed invention is drawn to treatment of asthma with anti-C5 antibodies. Karp also discloses that C5a also leads to down modulation of IL-12 (page 224, paragraph 1 for example). Accordingly, while apparently mechanistically different, the binding of both anti-C5aR and C5a to the C5aR results in a down regulation of IL-12 production. Therefore, the disclosure of Karp does not appear to teach away from the use of anti-C5 antibodies.

The Drouin (2006) and Sinha reports both show that C5-deficient mice are more susceptible to AHR. Drouin (2006) further discloses that mice treated with anti-C5 antibody before sensitization AND during challenge with antigen are more susceptible to AHR. Applicant concludes that these teachings therefore also teach away from the claimed invention. However both of these teachings address the susceptibility of animals who are either congenically deficient in C5 or who have C5 ablation prior to, or prior to and during, initial sensitization/challenge with an antigen. Drouin (2006) further discloses that in studies where animals are treated with an anti-C5aR antibody only during the challenge phase, there was decreased infiltration by classic inflammatory cells (page 2006, column 1 for example) and Drouin (2006) goes on to explain that there is a difference between treating before sensitization along with during challenge versus treating only during challenge (page 2006, column 2 for example). It is noted that the instantly claimed invention is drawn to the treatment of ongoing asthma. Accordingly, the subjects have already been sensitized. Therefore, Drouin (2006) does not teach away from the claimed invention, rather the artisan would see it as reinforcement for inhibiting the recruitment of classic inflammatory cells that were seen to be increased in the Drouin reference of record in this ground of rejection.

6. Claims 11-13, 15, 16 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Drouin (J. Immunol. [2001] 166:2025-2032; CP on form PTO-1449 filed 9/25/2006) as applied to claims 1-9 above, and further in view of Fitch et al. (Circulation (1999) 100:2499-2506; U on form PTO-892).

It was previously stated: "Drouin has been discussed supra.

Drouin does not teach the treatment of human subjects or the h5G1.1 antibody.

Fitch has been discussed supra.

It would have been prima facie obvious to a person having ordinary skill in the art at the time the invention was made to use the h5G1.1 antibody to treat airway inflammation in a human subject, such as one with asthma. One would have been motivated to combine the teachings for the treatment of human asthma patients with a reasonable expectation of success by the teachings of Drouin that anti-C5a antibodies reduce lung injury and edema in sepsis that are similar to the injuries seen in asthma and the

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teachings of Fitch that h5G1.1 antibody is effective for the treatment of inflammation-related injuries in human patients.”

Applicant has merely stated that Fitch does not correct the deficiencies in Drouin and Applicant has not provided further argument regarding Fitch. Accordingly, this ground of rejection stands as previously stated in light of the further explanation provided in section 6 supra.

7. Claims 17 and 45-48 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Drouin (J. Immunol. [2001] 166:2025-2032; CP on form PTO-1449 filed 9/25/2006) as applied to claims 1-9 above, and further in view of U.S. Patent 4,228,795 to Babington (A on form PTO-892).

It was previously stated: “Drouin has been discussed supra.

Drouin does not teach a disperser for dispersing an aerosol.

The '795 patent teaches a nebulizer which can be used to aerosolize medicants for nasal inhalation (Figure 4 and column 6, line 7 through column 8, line 54 in particular). The '795 patent further teaches that said nebulizer is suitable for use with viscous or sticky substances (column 8, lines 34-37 in particular). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use the nebulizer taught by the '795 patent to administer the anti-C5a antibodies taught by Drouin. One would have been motivated with a reasonable expectation of success to administer the antibodies directly to the respiratory mucosa, which is often the first line of encounter of an immune system with pathogenic organisms and by the teachings of the '795 patent that the nebulizer is usable with sticky substances, which a common property of proteinaceous solutions.”

Applicant has merely stated that the '795 patent does not correct the deficiencies in Drouin and Applicant has not provided further argument regarding the '795 patent. Accordingly, this ground of rejection stands as previously stated in light of the further explanation provided in section 6 supra.

Conclusion

8. No claim is allowed.

9. This is a RCE of applicant's earlier Application No. 10/655,861. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing

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date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to F. Pierre VanderVegt whose telephone number is (571)272-0852. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen O'Hara can be reached on (571) 272-0878. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Patent Examiner
March 17, 2009

/Eileen B. O'Hara/
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Art Unit 1644